

CACTUS AND SUCCULENT JOURNAL

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Of America

Vol. XIII DECEMBER, 1941 No. 12



FIG. 118. W. Taylor Marshall, President of the Society
for four years.



CACTUS AND SUCCULENT JOURNAL

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PRESIDENT'S MESSAGE

The past four years of my incumbency as President have been very happy years for me because of the splendid co-operation I have received and the accomplishment of my vision of a general conference of the entire Society.

To Scott Haselton I am particularly indebted for his whole-hearted support and encouragement. To Lad. Cutak, Charles Cole, R. W. Kelly, Dr. R. W. Poin-dexter, all of the Regional Vice Presidents, Mrs. Neff Bakkers and the many other members here, and throughout the nation, who have so generously given of their time and energy, my sincere thanks.

Without the aid so freely given by our incoming president, Ervin Strong, I could not have attained many of my objectives. I extend to him my best wishes in his new office and pledge my fullest co-operation.

We are now faced by a period of great difficulty and stress which can have but one outcome—entire victory, as is the habit of these United States, united now as never before and determined to win at any cost.

To this end we must devote our entire efforts and all our resources in the best traditions of our country. Money is needed in vast quantities at once so we can show our desire to co-operate by purchasing Defense Bonds and Stamps to the limit of our personal resources and beyond.

But what of the Society and its numerous affiliates in this emergency? Should we discontinue meetings and activities during this period? No. The events of these times require clear thinking and calmness and nothing can more surely produce clear thinking and

calmness than an occasional pause to contemplate the serenity of the good God's creations in the vegetable kingdom.

Plant lovers are invariably kindly people of great charity and friendliness—two virtues sadly needed now. Let us therefore continue our activities, regulating them so that they will not interfere with our most important duties to our country.

Daytime meetings should be the order in cities liable to blackouts to prevent unnecessary travel in those periods. Patriotism should be stressed at all meetings, the flag should be displayed and the salute to the flag should be the first order of all meetings.

It goes without saying that we will take on some extra job whereby we can help in this emergency, some of our younger members will serve in the armed forces and those of us who would be useless in such capacities will knit, sew, nurse, act as air raid wardens, or serve in the home guard, as our capacities fit us, but this we can feel sure, that a true plant lover will do his duty in any capacity to which he may be called.

It is a matter of great pleasure to me that the book "Cactaceae" which I have written and Mr. Bock has illustrated was published in time for Christmas. It is my intention to publish in the JOURNAL all future description of new plants so that your copy of "Cactaceae" may be kept up to date by entering a note of these descriptions as they are published in their proper position in the text.

My best wishes to all of our members and their families for a Christmas of happiness and for all good things in the New Year. W. TAYLOR MARSHALL.

BINDING JOURNALS—VOL. XIII

During the month of January you may send in your 1941 JOURNALS for binding. Send \$1.50 with your 12 issues to 136 W. Union, Pasadena, California, and they will be cloth bound to match the previous volumes and returned post paid by February 15th. The January JOURNAL will carry the final notice and "deadline." If any of your issues are missing, add 25c each and we will complete your volume. You may also bind at the same time any back issues of the JOURNAL by enclosing \$1.50 for each additional volume.

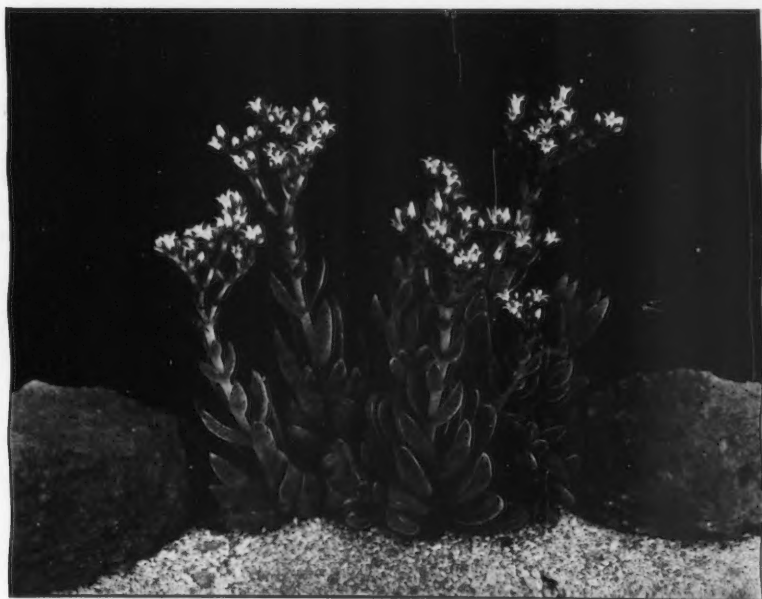


FIG. 119. *Crassula Justi-Corderoyi* Jacobsen & Poelln. approx. x 0.5

Crassula Justi-Corderoyi

By J. R. BROWN

Crassula Justi-Corderoyi Jacobsen & Poelln. in Jahrb. der D. K. G. (1935-36) 131.

Crassula Justus Corderoy Dtr. ex Jacobsen.

Succ. Plants (1935) 63.

In our collections of succulent plants there has been for a long time a plant named *Crassula "Justus Corderoy"* and little, if anything, was otherwise known about it excepting that it was imported from Europe under this name. It was probably first introduced to Southern California by the late Mr. Mendel of Hollywood who obtained it from the firm of De Laet of Belgium.

This plant, however, had come to the notice of Mr. Jacobsen of Kiel Botanic Garden and he mentions it in his book, *Succulent Plants*, but in error credits Dinter with the name *Crassula "Justus Corderoy"*. Later on, he and Dr. von Poellnitz went carefully into the possible identification of the plant and in the Yearbook of the German Cactus Society they described and gave this *Crassula* specific rank under the name, *Crassula Justi-Corderoyi*. Their findings are given in the following terms, "In nearly all col-

lections and in many commercial catalogs one finds *Crassula "Justus Corderoy"*, a small, good, but slow growing plant to which Jacobsen, l.c. (1935) erroneously applied the author name of Dinter. Little is known of the origin of the plant. Jacobsen investigated in England in 1936 and discovered that at Corderoy's estate no record was made about it. Mrs. Higgins, Croyden, the editor of the *British Cactus Journal*, wrote him, stating that Mr. Hall, curator of the Darrah collection in Manchester, had labelled the plant as *Crassula "Justus Corderoy"*, Hort., but that he does not know how he got this term—that Mr. Cobbold, at one time temporary curator, said that Corderoy had liked to name a plant after himself and probably had given this *Crassula* his own name also. In the opinion of Mr. Cobbold this plant may perhaps be a cross between *Crassula falcata* Wendl. and another unknown species. To us it seems, however, incorrect that this plant is an artificial cross in which *Crassula falcata* is involved. As far as we know, artificial cross-breeding with *Crassula* is as yet unknown. We

believe *Crassula* "*Justus Corderoy*" to be a good plant, originating from S. W. or South Africa, which may have arrived early in Europe and which was not again collected in Africa. The latter is not surprising, when it is remembered that the habitat of about 30% of the Haworthias is unknown, at one time these plants were collected and sent to Europe, but since then they have not again been found in their native habitat."

This is a very distinct little *Crassula* and flowers over a long period in late summer in Southern California, although the flowers are at their best during late August and early September. The color of the flowers is intermediate between the whitish-pink flowers of *Crassula Cooperi* Regel and the reddish flowers of *Crassula Schmidtii* Regel.



FIG. 120

The green leaves are densely covered with very uniform, small, round, more or less clavate, pellucid papillae. On the rounded backs of the leaves the papillae are arranged in more or less vertical lines, on the somewhat flat leaf faces the papillae are not quite so dense and are absent from irregularly scattered small areas giving the leaf faces a distinctly marked appearance. At the extreme leaf bases the papillae take the form of short ciliae. A few small brownish spots are scattered over the leaf surface and when grown

in sufficient sunlight the leaves become suffused with a dark reddish tinge, especially towards the tips. In Southern California this *Crassula* is fairly fast growing and forms a dense mat, as it branches all along the decumbent stems.

It would seem difficult to imagine how Mr. Cobbold could surmise that *Crassula falcata* Wendl. was a possible parent of this plant as there is not the slightest evidence of this.

It might be mentioned here that several artificial crosses have been made with *Crassulas* in California and there does not seem to be any reason why they should not hybridise. Hybrids have also occurred here, when *Crassula* seed from South Africa had been collected when many species were growing together in nurseries or gardens.

The photos illustrating *Crassula Justus-Corderoyi* show a small cluster which was about 13 cm. in diameter, and the upper part of one of the flowering stems, nat. size.

EDITORIAL

We have held up the mailing of the December JOURNAL until after the Christmas rush. We have tried to give you a pictorial number that should please our readers. The January issue will contain Affiliated Club news and the new officers, gleanings from correspondence, additional lists of recent publicity and magazine articles, besides the feature articles.

The policy of the JOURNAL for 1942, will allow contributors of scientific articles fifty reprints without charge. These reprints will be printed in sections of sixteen pages of various articles, which will be separated and mailed to each contributor.

We are fortunate in having secured materials for the next twelve issues of the JOURNAL and we feel that it is our duty to help maintain a normal life. As Mayor La Guardia said, "Go about your daily work, doing everything a little better." The "Timely Information Bulletin" of Ortho Products says:

"Ornamental gardening is not neglected in the Program, but at the start more emphasis will be placed on the nutritional side. The Garden Committee recognizes, however, that at no time does it seem more important that home and municipal flower gardens and parks be stressed than now. It is pointed out that many city dwellers with small back yards can have a few flowering plants, shrubs, trees, and a patch of grass, but that usually these sites are unsuited for vegetable growing. Such families are encouraged to grow ornamentals. It is noted also that there will be no shortages of food stuffs, and that it will be unnecessary for these urban dwellers to plow up their lawns and flower beds."

In these more or less precarious times we sometimes look back with regret that we did not record in photo or herbarium material the flowers and fruit of succulents. To encourage the preparation of herbarium material R. H. Peebles has prepared a fine illustrated article on "Preserving Succulent Material" which will be one of our forthcoming features.

SCOTT E. HASELTON.

ARIZONA CACTI—1941

The second edition of this excellent book is priced at \$1 in paper covers or \$2.20 cloth bound.

Box 101, Pasadena.

Crassula perforata Thunb. and *C. rupestris* Thunb.

In the July number of this JOURNAL, Vol. 13, p. 109, (1941), Mrs. Vera Higgins discusses *Crassula perforata* and *C. rupestris* and attempts to clear up any confusion which may exist as to their distinguishing features. But the story is still incomplete, and, personally, I am not convinced that Mrs. Higgins is correct in all her conclusions. At the outset I must admit that the literature and specimens necessary for a complete review of the problem are not available to me but I have sufficient data for constructive criticism.

Both species *C. perforata* and *C. rupestris* are based on specimens and descriptions made by Carl Thunberg, the Swedish botanist, who traveled and collected in the Cape Province of Southern Africa 1772-75. For the time being we may ignore all other authors. The descriptions given in Thunberg's *Flora Capensis* ed Schultes 1823, may be taken as giving the essential characters of the two species. The following is a free translation from this work:

perforata: . . . leaves ciliate, flowers in a spike, panicle, the main axis being elongated and indeterminate.

rupestris: . . . leaves quite entire and glabrous on the margins, slightly concave on the upper surface; flowers corymbose, the flowers being in a flat-topped cluster and the central axis not being elongated.

Taking the leaf characters alone, it is clear that Mrs. Higgins has given a true representation of the typical forms in Fig. 63 accompanying her article. Unfortunately not all plants in nature are typical. Some forms of *C. perforata* in the Cape Province have none or practically no cilia or hairs on the leaf margins and it becomes necessary to look for other distinguishing characters. One has little difficulty in distinguishing the species in the veld. In addition to the technical details, *C. perforata* is branched mostly near the ground, is rather straggling and never becomes very woody; whereas *C. rupestris* normally forms an erect freely branched compact shrublet about 18 inches high with woody main stem and branches. In cultivation, however, the growth form may be materially modified as witness Mrs. Higgins' statement that in her experience *C. perforata* is the more erect of the two.

The shape of the leaves is more constant than their size. Generally speaking those of *C. perforata* are somewhat reflexed, are thinner and flatter and more tapered or acute than those of *C. rupestris*, which are spreading-erect, concave on the upper surface and deeply rounded on the

under side. The margins of both may be reddish or red spotted; those of *C. perforata* more obviously punctate; both are glaucous, but *C. rupestris* more conspicuously so, being covered by a thick "bloom" in the wild state.

In the separation of species the reproductive organs are more important than the vegetative characters. Although variation may take place in the inflorescence also, it is rarely sufficient, even in cultivation, to cause confusion between the two species. *C. perforata* is elongated and lax whereas *C. rupestris* is contracted and relatively dense. The flowers of the latter are slightly longer and the more showy of the two, being pale pink in color while those of *C. perforata* are greenish yellow.

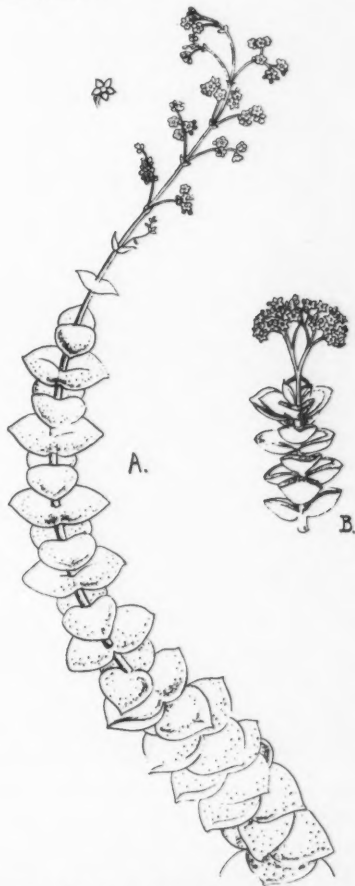


FIG. 121. (A) *Crassula perforata* Thunb. and (B) *C. rupestris* Thunb., drawn by Miss M. E. Connell.

In the identification of the illustration *Plantes Grasses* t. 25, named *C. perfossa* Lam. by De Candolle, Mrs. Higgins pinned her faith on the absence of hairs from the margin of the leaves. This is where the difference in opinions crops up. I have stated, with herbarium specimens as witness, that the leaves of some forms of *C. perforata* have no hairs on the margins, and this knowledge, together with the character of the inflorescence, leaves no doubt in my mind that *Plantes Grasses* t. 25 represents *C. perforata* Thunb., and that Schonland, and incidentally Berger, were correct in placing the *C. perfossa* of De Candolle (non Lam.) as a synonym of *C. perforata* Thunb.

Compare the two accompanying copies of illustrations: A, *Plantes Grasses* t. 25, and B, *The Flora of South Africa*, by Marloth, Vol. 2, Sect.

1, plate 5, fig. D. Ignore the fact that both were originally named *C. perfossa* Lam. Note particularly the inflorescence, the former agreeing well with Thunberg's diagnosis for *C. perforata*, and the latter with his *C. rupestris*.

Now turn to *Succulents for the Amateur* and compare once again figs. 5 and 149. It is agreed that No. 149 is correctly named, *C. rupestris*, but what of No. 5? Is it the same species as 149, as suggested by Mrs. Higgins or is it *C. perforata* as listed? Unfortunately the inflorescence is not shown. The leaves are flatter and more acute than those shown in fig. 149, the habit of the plant is less erect and more reminiscent of *C. perforata* in its native habitat and not unlike *Plantes Grasses* t. 25. For these reasons I consider the two figures in *Succulents for the Amateur* correctly named.

R. A. DYER, Pretoria, South Africa.

ARIZONA CACTI

Photographs furnished Cactus and Succulent Journal from official files of United States Field Station, Bureau of Plant Industry, U.S. D.A., Sacaton, Arizona. October 18, 1941.

EDITOR'S NOTE: The five photographs reproduced herewith were made by R. H. Peebles of U. S. Field Station, Sacaton, Arizona, and reproduced here through the courtesy of the Bureau of Plant Industry, U.S. Dept. of Agriculture. All cactus people enjoy Mr. Peebles' fine photos which are most helpful to student and botanist. Mr. Peebles prefers the Engelmann classification whereas those of us who follow the Rosean system are just as appreciative of his generous contributions.

SCOTT E. HASELTON.



FIG. 122. Undescrbed Arizona cactus in *Echinocactanae*. Spines very densely hairy and superficially resembling a spike of the cat-tail (*Typha*). Grafted specimen; 3 cm. in diameter.



FIG. 123. *Cereus Schottii* Engelm. Flowers pink, nocturnal (opening shortly after sunset, closing early the following morning), 3.5 to 4.0 cm. long, 1 to 3 from an areole. Berries globose, dull scarlet, about 3 cm. in diameter, the pulp red. Many of the long spines on the upper part of the stems twisted like a corkscrew. Photo taken in Puerto Blanco Mountains, Organpipe National Monument, Pima County, Arizona, a few minutes after sunrise, June 3, 1940.

(R. H. Peebles photo from files of Bureau of Plant Industry, U.S.D.A.)



FIG. 124. Vertical section of a flower of the barrel cactus, *Echinocactus Wislizeni* Engelm. Flower 6.5 cm. long; perianth segments yellow with purplish-pink midstripe; filaments and style purplish-pink; anthers yellow; style hollow to base. Sacaton, Arizona, Sept. 7, 1940.

(R. H. Peebles photo from files of Bureau of Plant Industry, U.S.D.A.)



FIG. 125. Wild plant of *Cereus Greggii* Engelm. flowering under natural conditions, Sacaton, Arizona. This large plant produced 24 flowers on the night of July 10, 1939. The photograph was taken the next morning at 6:30 A. M. (See accompanying photograph showing the huge root of this plant.)

(R. H. Peebles photo from files of Bureau of Plant Industry, U.S.D.A.)

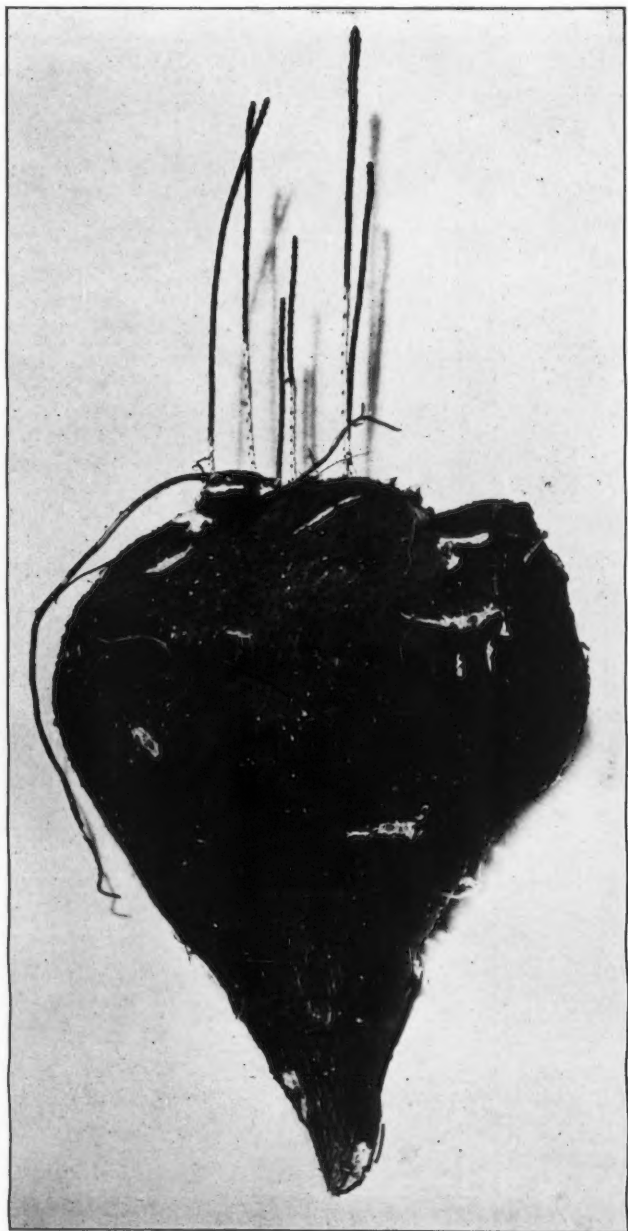


FIG. 126. Huge root of the night-blooming cereus shown in photograph No. 4, which was taken about 13 months earlier when the plant was in flower. Some time after the plant flowered in 1939 it went into a resting stage, as is usual in this species, and the stems died. In May, 1941, when the root was removed from the ground, it weighed 85 pounds. Stored on a shaded porch until photographed August 1, 1941, the root measured 21 inches in length, 17½ inches in greatest diameter, and 53 inches in greatest circumference, and weighed 78½ pounds. The 6 short stems developed while the root was stored.

(R. H. Peebles photo from files of Bureau of Plant Industry, U.S.D.A.)



FIG. 127. *Agave americana variegata* as a photographic study

Succulents are Decorative

Few, if any, house plants require as little attention as cacti. They like a sandy, well-drained soil with lots of humus and a little lime, and they'll scream and tear their hair if they have to stand about with their feet in water, so just barely keep them damp—no more. They are naturally accustomed to warm, sunny exposures, so

give them one or two days a week outside in the full sun. Or better yet, keep them in a south window. Many of them will bloom for you, and if you haven't seen an *Eriocereus* in flower, you haven't lived.

It is highly advisable to learn their technical names. This is very important in buying cacti,



FIG. 128. *Cleistocactus Strausii* arranged in Pueblo pottery.

because ordering a "Barrel Cactus" will get you as many different kinds of plants as there are dealers, while ordering *Echinocactus Grusonii* will always get you the same golden spined beauty. Of course, if you like the surprise package type of adventure you had best ignore this advice.

There are types of cactus to fit any arrangement, as the accompanying illustrations will prove, and it is fun to watch them grow and produce flowers.

Give them a try. They may lead you to new gardening thrills.

GRAHAM HEID.



FIG. 129. *Cereus* sp. in a clay pot polished with floor wax.



FIG. 130. *Trichocereus* sp. arranged in a glazed pot.

Hardy Cacti at Warrenton, Missouri

By JAMES GERDEMANN

Cacti and other succulents are probably the perfect rock garden plants. They will fit in with the rocks to form just the right effect. In the South it is comparatively easy to fix a cactus rock bed, but in the North and especially the cold and damp Northeast it is a different matter. We have to be content with fixing our rock beds up nice for the summer, with our cacti, and then just as we get them looking right, pull up the whole business, and move them in for 6 months of the year. As everyone can see this is not very satisfactory and besides it's quite a job to keep moving them in and out, if you have a fairly large collection. Most people know there are hardy cactus species, but most of them don't attempt to collect and fix an outdoor bed of them. Perhaps this is due to lack of information on the subject.

Now we are trying to find the species that will live outdoors the year round in a cold-wet climate with no protection. Most of us know that a great many species are able to stand extremely cold weather when they are kept dry, but the combination of cold and moisture will prove too much for them. The only way to find the truly hardy species is to plant out a large number to find the few that can take it. This may seem wasteful, but it is the only way. For instance, I purchased a fairly large collection of plants from the Big Bend region of Texas, expecting most, if not all, of them to freeze. However, one plant, *Coryphantha macromeris* lived. This bit of information alone repaid me for the many species lost.

As for the construction of a rock bed for cacti in our damp cold climate, first of all try to make your drainage as good as possible. A raised bed is necessary. I have used a soil composed of $\frac{1}{2}$ coarse sand and $\frac{1}{2}$ black top soil, to which was added about 6% crushed limestone. The bed was outlined with rocks fitted closely together so that the soil would not wash out, and filled up about 8 inches above the surrounding soil. It would be better if it could be built on a slope or hillside.

The amount of cold these plants stood was not extremely severe. However, the coldest weather came when most of them were still growing. If it had not been for this sudden cold following the warm growing weather, I believe several more species would have come through the winter in good shape. Several of them will be tried again next winter. This extreme weather came in November and it is said it did a great deal of damage to fruit trees and much nursery stock.

Space will not allow a very complete account of the weather conditions. However, here are a few notes on the winter: Up to November we had no cold weather and nearly all plants were growing. Then without warning the temperature dropped to 4° above zero in 5 days. This was the coldest for the winter. December was not extremely cold, 8 degrees above being the minimum reached, but it was very damp and foggy and the sun shone only very few days. January had several warm periods followed by sharp drops in temperature, which did more damage than steady cold. It was very dark and damp with practically no sun. All of February and the first half of March was rather cold—freezing every night and thawing out on most days. The coldest for this period was about 5 degrees above. It was an extremely hard winter for nearly all plants.

A great deal of credit is due the following people for the data secured: Mr. W. Taylor Marshall who conceived the idea of the experiment, and who helped us in getting started by suggestions and plants; Mr. W. D. DeLong of Albuquerque, who kindly gave us the species native to that section; Mrs. C. F. Lill of Seattle, Washington, who gave us the cacti native to her state; and Mr. J. W. Skinner of Peckham, Oklahoma, for plants and information.

I hope that the report listed below will cause others to become interested in this most interesting hobby of discovering the species of cactus that can be used in our northern rock gardens. Let us hope that each year we will be able to add more species to our "hardy list."

HARDY SPECIES

SPECIES	LOCALITY COLLECTED	REMARKS:
<i>Opuntia erinacea</i>	California	Hardy during record-breaking winter (16° below zero) '39-'40. Killed by fungus, winter '40-'41. Came through in good condition.
<i>Opuntia arborescens</i>	Albuquerque, New Mexico	Hardy last two winters.
<i>Opuntia polyacantha</i>	Colorado	Stood 4 degrees above zero when in growing condition.
<i>Opuntia aurea</i>	California	
<i>Opuntia fragilis</i>	Iowa and Washington	
<i>Opuntia polyacantha?</i>	Washington	
<i>Echinocereus viridiflorus</i>	Albuquerque, New Mexico	

SPECIES	LOCALITY COLLECTED	REMARKS:
<i>Echinocereus caespitosus</i>	Oklahoma	Plants should be from the North-eastern part of its range—plants collected from Southern range freeze.
<i>Echinocereus Baileyi</i>	S. W. Oklahoma	
<i>Echinocereus chloranthus</i>	Van Horn, Texas	Plant lived but roots rotted off.
<i>Pediocactus Simpsonii</i> var. <i>robustior</i>	Washington	Comes through in fine shape.
<i>Coryphantha neo-mexicana</i>	Albuquerque, New Mexico	Two out of three lived.
<i>Coryphantha vivipara</i>	?	
<i>Coryphantha macromeris</i>	Marathon, Texas	Out of a large collection from Big Bend, the only species that lived.
<i>Neobesseyia similis</i>	Texas	
<i>Neobesseyia missouriensis</i>	Oklahoma, Montana and others	
<i>Neobesseyia notesteinii</i>	Montana	Goes completely underground for winter.
<i>Homalocephala texensis</i>	Texas, locality unknown	Plants should be from Northeastern part of range.

SPECIES THAT FROZE

SPECIES	LOCALITY COLLECTED - DATE KILLED	CAUSE, ETC.
<i>Opuntia basilaris</i>	California Dec. 20	Badly frozen by November cold spell, but not killed.
<i>Opuntia erinacea</i>	Grown under glass Nov. 18	Frozen by first cold spell, collected plant much hardier.
<i>Opuntia Davisii</i>	Nov. 11	Killed at 15 degrees when in growing condition.
<i>Opuntia santa rita</i>	Feb. 21	Showed no sign of injury until last of Jan.
<i>Opuntia rufida</i>	Nov. 11	Killed at 15 degrees.
<i>Opuntia Whitneyana</i> var. <i>albiflora</i>	Nov. 30	
<i>Opuntia leptocaulis</i>	Big Bend region Jan. 9	Badly frozen back in November when still growing.
<i>Opuntia kleiniae</i>	Texas Dec. 20	
<i>Opuntia microdasys</i>	Nov. 11	Froze at 15 degrees.
<i>Maibuenia poeppigii</i>	Chile	Slightly frosted in November freeze, then slowly passed out.
<i>Echinocereus Fendleri</i>	Albuquerque, N. M. About Jan.	Frozen back in November.
<i>Echinocereus triglochidiatus</i>	Albuquerque, N. M. Dec. 20	Badly hurt in November when still growing. Will be tried again.
<i>Echinocereus coccineus</i>	Albuquerque, N. M. Dec. 20	Badly hurt in November when still growing. Will be tried again.
<i>Echinocereus perbellus</i>	Midland, Texas Jan. 9	Killed by cold after a warm rain.
<i>Echinocereus enneacanthus</i>	Texas Nov. 18	Killed by 4 degrees above when growing.
<i>Echinocereus Davisii</i>	Big Bend Dec. 20	
<i>Echinocereus dasyacanthus</i>	Texas Jan. 9?	
<i>Echinomastus intertextus</i> var.	Albuquerque, N. M. Jan. 9	3 plants, all killed by fungus, seems to be hardy.
<i>Rebutia minuscula</i>	Cutting Nov. 11	Froze at 15 degrees.
<i>Echinocactus horizontalis</i>	Big Bend region Jan. 9	Killed by orange fungus, may be hardy.
<i>Escobaria dasyacantha</i>	Big Bend region Dec. 20	
<i>Coryphantha Hesterii</i>	Big Bend region Dec. 20	
<i>Coryphantha echinus</i>	Big Bend region Dec. 20	
<i>Coryphantha pectinata</i>	Big Bend region Dec. 20	
<i>Coryphantha Nelliae</i>	Big Bend region Nov. 30	
<i>Thelocactus bicolor</i> var. <i>schottii</i>	Big Bend, Texas Nov. 30	
<i>Epithelantha micromeris</i>	Big Bend, Texas Jan. 9	Stood a great deal of cold—perhaps plants collected farther north would be hardy.
<i>Ariocarpus fissuratus</i>	Big Bend, Texas Dec. 20?	
<i>Mammillaria greggii</i>	Big Bend, Texas Dec. 20	
<i>Mammillaria metacantha</i>	Big Bend, Texas Nov. 11	Killed at 8 degrees.
<i>Mammillaria lasiacantha</i>	Big Bend, Texas Dec. 20	
<i>Mammillaria applanata</i>	Big Bend, Texas Jan. 9	Stood first cold spell in good shape.
<i>Mammillaria Wrightii</i>	Seedling Jan. 9	Filled with water after a warm rain, then cold spell killed it. Said to stand 20° below zero in N. Mexico
<i>Pleiospilos Nellie</i>	Nov. 11	Froze at 15 degrees.
<i>Escheveria elegans</i>	Nov. 11	Froze at 15 degrees.

Several of the above species are no doubt hardy if plants are from the northern part of their range. Several others such as *E. triglochidiatus* and *E. coccineus* are probably hardy when the cold comes on gradually and not too severe as sudden drops in temperature early in winter, before the plant has had time to go dormant, are fatal.



FIG. 131. *Melocactus caesioides* in Colonel Montgomery's estate at Coconut Grove. RIGHT: General view of the Desert Garden at Florida Cypress Gardens in Winter Haven.

Florida Adventure

By LADISLAUS CUTAK

In charge of succulents, Missouri Botanical Garden

A fabled "Fountain of Youth" lured the intrepid Ponce de Leon to Florida shores nearly four hundred and twenty-seven years ago. Pascua Florida, he had named this huge-tongue of land which extended from the southeastern corner of our present United States, because it happened to be Easter Sunday when he had landed.

It was not the "spring of youth" that lured me and my family to Florida; in fact I overlooked this well-known attraction which is located in St. Augustine and where it is claimed the gallant Señor was supposed to have taken his ablution. However, I was very curious to see, "with my own eyes," the plant life that is so abundant in that state. For over a decade I have planted and watched over the tropic vegetation in the greenhouses of the Missouri Botanical Garden. What fun it would be to see how these plants thrived in the sunshine and air of the open ground. Thus Florida beckoned and I answered the call.

Cold, incessant rain on the day of departure failed to dampen our spirits. Mile after mile was left behind, separating us farther away from home. The unmitigated raindrops gradually gave way to the rhythmic pitter-patter and even this finally died away in an echo, as evening shadows overtook us on Kentucky soil. Morning sun shone brilliantly, as it mounted steadily heavenward, but the drive through Georgia was marred by another steady downpour and chilling atmosphere—aftermath of a devastating hurricane that swept over the Atlantic seaboard, causing much damage and loss of life.

Late that afternoon an impending storm, accompanied by brilliant flashes of lightning, forced us to spend the night at Twin Lakes, a beautiful resort region barely seven miles from the Florida state line. Here I witnessed a most marvelous display of sky illumination, which still is focused clearly in my mind today. Words fail in attempting to describe this colorful phenomenon and only because of fear to do it justice I refrain

from elucidating further. Yet there I stood beside the mirrored lake, completely enthralled,—just gazing into the sky until the curtain of night fell over the heavenly stage.

Turpentine groves are a distinct feature in southern Georgia just as they are in northern Florida. Little wooden buckets or just plain flower pots, attached to the trees, were in evidence everywhere. The trunks of the tall, slender pines were marked by the peculiar slits or channels by which the resinous juice descended in step-like fashion into the containers fastened below. Turpentine distilling is an enterprising and an interesting industry.

Inland Florida is criss-crossed by miles of broad, smooth highways, which carry you through a fascinating cavalcade of contrasts. Picturesque lakes and neat farms stud the high, rolling country, which nowhere exceeds more than three hundred feet above the sea level. Scintillating orange groves shroud the undulating hills with their rich mantles of shining dark green. Lavishly moss-draped trees fringe the inviting lakes and a veritable floral fairyland nestles in the hammocks and even on the sand-covered scrubland, which typifies the desert sections of Florida.

The name of Dr. Henry Nehrling is probably well-known in most circles of cactus collectors, or at least, it should be. He had experimented with hundreds of cacti in his "Palm Cottage Gardens" at Gotha, and later in his "Tropical Garden" at Naples,—leaving a fund of valuable knowledge concerning their culture in Florida. The eminent plantsman wrote voluminously, most of his articles appearing in *The American Eagle*, a weekly news-magazine published by the Koreschan Unity at Estero, Florida. This unique weekly carried Dr. Nehrling's choice newsbits almost continuously from late 1922 nearly through 1929, when he had passed from this earth in his seventy-sixth year. The popularity of his cactus articles is so great today, that *The American Eagle* condescended to reprint some of

them only recently.

Dr. Nehrling was a great student of nature. He first experimented with tropical and subtropical plants in 1879, while he was in Texas, and his enthusiasm for this field of horticulture grew from year to year. He was fond of cacti and once wrote "I can scarcely recollect a greater delight in my life than when coming suddenly upon groups of *Echinocereus caespitosus* and *Echinocactus texensis* in full bloom in the Post Oak woods of Texas, or when seeing for the first time the large, pure white and deliciously fragrant flowers of the Queen of the Night on the trunk and among the protecting leaves of a large Cabbage Palmetto in a garden of Palm Beach."

Dr. Nehrling cultivated the choicest and most exquisite of cacti in his garden. Unfortunately he found that only a few species proved perfectly hardy at Gotha, and after a catastrophic freeze in 1917 he had decided on moving to Naples, where he again became a pioneer in the wilderness. There he found that most cacti grew with vigor, repaying him with an abundance of bloom.

At Orlando we were fortunate to enjoy the hospitality of Mrs. Nehrling, widow of the twice-married plantsman, who told us of many incidents in his busy life. Her son, Robert Mitchell, operates the Shore Acres Nursery along the banks of Lake Jessamine, just outside of the city. Knowing that I was particularly a great lover of succulent plants, Bob Mitchell escorted my dad and me to the Tropical Arts Studio in Orlando, where an impressive cactus garden was located. Mr. Mulford B. Foster, artist, landscape designer, nurseryman, plant collector and member of the Cactus and Succulent Society, is the proud owner of this desert garden, possibly the best in the whole state. Unfortunately, during our visit, Mr. Foster was absent in Brazil, where he had gone with his wife to hunt Bromeliads, or members of the Pineapple Family. During the past two years, Mulford and Racine Foster have traveled some 12,000 miles in several of the states of Brazil, in search of the strangely-fascinating epiphytes that grow on the trunks and branches of trees. In 1939 not less than thirty new species were discovered in Brazil and on their return last October another goodly number of new ones were brought back, although it will be months before all of the determinations can be made at the Gray Herbarium. At present, Mr. Foster estimates that he has over four hundred species of Bromeliads, distributed in thirty genera, making it possibly the largest botanical collection in the world.

The collection of cacti and succulents was inaugurated about twelve years ago under adverse conditions. The slightly acidic Florida soil and native nematodes had to be eliminated before success crowned his efforts with these plants. Several collecting trips were made into Mexico, particularly for the cacti, which now adorn the garden. The large Old Men (*Cephalocereus senilis*), of which there are a number, were brought direct from the valley of their native habitat. The tallest specimen, about 6 feet high, was kept in the greenhouse, which was devoted exclusively to succulents. *Bryophyllum scandens* twined around its base and a number of *Euphorbia lactea* crests flanked it on both sides.

It was hard to estimate just how many succulents were being grown in the greenhouse. Suffice to say, there was a goodly number. Through the center of the glasshouse, a slightly raised bed ran the full length and in it were planted specimen plants, including a number of Aloes, Euphorbias, Kalanchoids, and Cacti. Benches occupied both sides of the house and were crowded with potted plants of various succulents,

among them the more prominent being Echeverias, Haworthias, Mesemb., Cacti and Euphorbias.

The outdoor cactus garden covers less than an acre and contains many choice specimens. Most of the plants are kept outdoors throughout the year; however, the more tender ones are brought into the greenhouse or are covered with burlap during a cold snap. Arborescent Cerei, tall-growing Opuntias, shrubby Yuccas and massive Agaves are conspicuous in the garden, while the undergrowth consists of prostrate or low growing forms, composed of Aloes, Mesemb., Cacti, Hechtias, and Crassulaceous plants. Palms, like *Butia capitata*, *Arecastrum Romanzoffianum* and others, add distinction to the whole scene.

The Fosters have no special favorites among the vast assemblage of desert oddities—they like each and every one of them, regardless whether they have flowered for them or not. On many occasions these plants have served as subjects for many of Mr. Foster's paintings.

Within easy access of Orlando is an almost unbelievable paradise created by Richard Downing Pope in his magnificent Florida Cypress Gardens along the shores of Lake Eloise near Winter Haven. It takes only about two hours to negotiate the 60-mile distance separating Winter Haven from Orlando, but why rush along when there is so much to see along the road. Inland Florida is a picturesque region, and deserves a leisurely cruise.

Lake Eloise is one of the more than 30,000 lakes located in Florida, yet it is outstanding in its picturesqueness. Here, giant cypress trees with their moss-hung branches and feathery foliage grow far out into the waters, casting furtive shadows on the mirrored surface. During the great Florida boom, a palatial yacht club was erected on its shores, which later had to be abandoned like so many other "get-rich-quick" places of those hectic days.

Starting almost from scratch, Mr. Pope transformed this abandoned site along Lake Eloise into one of the most beautiful gardens within the confines of the United States. The present location had always been a natural beauty spot, but to it Mr. Pope has added plants and flowers of the tropical world and improved upon Mother Nature's original layout. He has done such a good job that within the short span of five years since they were opened to the public, the Florida Cypress Gardens have become one of the most world-renowned attractions of our country.

A unique rock garden is one feature that is bound to impress the cactus fan. Although quite extensive in area, it does not contain as yet such a large collection of succulents, because these plants are still in the experimental stage on the place. An occasional freeze, the moist atmosphere and other factors must be taken into consideration for the successful cultivation of xerophytic plants in this region. I had quite a long chat with Mrs. Inez P. Hallinan, sister of the builder of the Cypress Gardens, who seems to be quite a plant lover and a fancier of succulents. She showed me her rather impressive notebooks that she keeps on these plants, for she aids in the gardening work at the Gardens.

The rock garden is built on the hillside, framed by palms and moss-draped cypress trees in the background. Prickly Pears in several varieties and wicked Chollas show to excellent advantage. Climbing Night-bloomers clamber up the trunks of trees; Harrisias and other arborescent Cerei are scattered throughout the collection. Velvety-leaved *Kalanchoe beharensis* seems to be happy in its surroundings, while there is no doubt that *Bryophyllum daigremontianum* and *B. tubiflorum* are more than satisfied, cluttering every available space with their fallen plantlets. *Yucca aloifolia* grows ex-

FIG. 132. RIGHT: Bed of succulents at the McKee Jungle Gardens, Vero Beach.



LEFT: Cactus Garden of Mulford Foster, Orlando, Florida.

uberantly and Century Plants from Mexico poke their extended leaves in rosette fashion. Giant-flowering *Stapelias* gained a foothold in the rock crevices and in season produce innumerable star-shaped flowers which show to advantage against the rocks. The common *Sansevieria trifasciata* and its colorful golden-striped variety are planted by the hundreds, while the more rare cylindric-leaved *Sansevieria* is less conspicuous.

Deeper and deeper we drove into Florida and soon found ourselves on the famous Tamiami Trail, a marvelous feat of road building through the swampy Everglades. The Trail's eastern terminus brought us into Miami, the Riviera of the United States. The immaculate houses with their tiled roofs were overhung with swaying fronds of palm trees while the walls were splashed with brilliant colors of flowering vines of all sorts. Cactus plants and other succulents almost always find a place in the foundation plantings around these low, one-storied homes.

In the rich residential Coconut Grove, beyond the Pan-American Airways terminus, Colonel Robert Montgomery possesses a 75-acre tract of land to which we hied ourselves on a Saturday afternoon. The Colonel acquired the estate about eight years ago and being a great plant lover, cleared two-thirds of the area and planted it with native and exotic trees and shrubs. Instead of building himself a magnificent mansion, the Colonel constructed his winter home along simple lines and spent large sums of money in the development of his garden, in which many rare plants are now thriving. Many of the fine cycads and palms were actually transported from their native Australia, South Africa, Mexico, and Cuba to become permanent fixtures in the garden, whereby the botanist, student and layman could have ample opportunity to study their behavior under Floridian conditions. There are over 500 species of palms and cycads in the Coconut Grove Palmetum, besides thousands of other worthwhile subjects, fit for the southern gardens.

I was astonished at the large display of botanical novelties assembled on the Montgomery estate. I was more than elated when Mr. A. C. Jordahn, the superintendent, showed me the extensive desert collection I never dreamed of finding here. I had no idea that such a large succulent garden existed in southern Florida, yet here it was unfolded before my very eyes. Against a background of native Slash Pines (*Pinus caribaea*)

and other Florida indigenes were huge bushes of Prickly Pear, particularly *Opuntia Dillenii*, copiously covered with its large purplish fruits. The individual joints of this species are very large, over a foot long, and bear numerous somewhat flattened and curved yellowish spines. The large sub-globose fruits are very juicy and are edible, but contain a fill of sizable hard seeds. Several shrubby Mexican Prickly Pears almost grow equally as well as the native *O. Dillenii* and were likewise in fruit. The Southwestern Cholla types surprised me with their healthy growths. The somewhat rare *Cephalocereus Deeringii* from the Lower Matecumbe Key was represented among the columnar Cerei. Candelabriform *Consoles* from the Bahamas interested me greatly and there were many groups of *Echinopsis* with buds and withered perianths. A field of massive Century Plants (*Agave americana*) were throwing up their tree-like inflorescences and were a sight to behold. Madagascan *Bryophyllums* and South African Aloes were scattered among the plantings, the former establishing themselves wherever the "babies" from the leaves happened to fall.

The cactus that intrigued me more than ever was *Melocactus caesi*, native to the coastal regions of northern South America. There were several of them growing about, each crowned by the peculiar white cephalium, characteristic of the genus. Tiny pinkish blossoms protruded from the woolly crowns.

I had intended to do a lot of photographing but this phase had to be curtailed on account of the mosquitoes and I had come unprepared for their attacks. These pesky little "swamp angels" can become bothersome, and there is no need denying that they are prevalent during the summer season.

Along the Atlantic Coast near Vero Beach are the McKee Jungle Gardens, covering 80 acres of "heavenly paradise." The unpretentious gateway gives no hint what's on the inside, but I had heard about these gardens from many lips. Even mosquitoes could not keep me from it. Getting acquainted with Jens Hansen, the superintendent, was no trouble at all. In fact he had expected me for we had corresponded before. Dressed in his characteristic tan breeches, knee-high boots, his head topped by the customary white sun-helmet, Mr. Hansen led us on a safari through the exotic jungle. Orchids grew in profusion in the crotches of moss-draped trees. Thousands of rare and exquisite-flowered

plants grew along the winding paths. Monkeys chattered in the tree-tops, parrots screeched noisily, and other harmless jungle animals frolicked and sported in the large enclosures provided for them. Any minute, I thought, the saronged Dorothy Lamour would emerge from the jungle depths. Then we came out in the clearing, and to my amazement, Mr. Hansen pointed to a small bed of cacti and succulents planted around a dying tree. Slender *Selenicereus* clambered upward in the hollowed trunk; *Bryophyllums*, *Crassulas*, *Aloes*, *Stapelias*, *Euphorbias* and the odd *Kalanchoe beharensis* appeared to be the showiest members. I hope the McKee Jungle Gardens will increase the succulent collection. There is no reason why these plants cannot thrive there. Readers, by all means you must see McKee Jungle Gardens!

Thus ends my Florida Adventure. I hope you have enjoyed it with me, and when opportunity presents itself, why not visit some of the places I have enumerated here.

BOOK REVIEW

PLANT HUNTERS IN THE ANDES. Dr. T. Harper Goodspeed. Farrar and Rinehart—\$5.00.

Readers of the "Journal" have a treat in store as they anticipate reading a recently published book: "Plant Hunters in the Andes," by Dr. T. Harper Goodspeed. Dr. Goodspeed, as Professor of Botany and Director of the Botanical Garden at the University of California, needs no introduction to plant lovers. He has introduced many plants of merit to gardens and is well known as a traveller and lecturer. His lively interest in cactus and succulent plants has built up the large and representative collection of these plants now at the Botanical Garden at Berkeley. "Plant Hunters in the Andes" tells the story of two University of California Botanical Garden Expeditions to the Andes, 1935-36 and 1938-39. The real object of both expeditions was collection of new and rare species of *Nicotiana*, a genus of plants which contains the tobacco of commerce, to further the author's scientific research and investigation. Convinced, soon after accepting an assistantship in the Department of Botany at the University of California, some thirty years ago, that scientific research in *Nicotiana* was to be his life work, the author of this new book must have early envisioned adventurous plant explorations in many foreign lands. Some of these visions have now materialized in "Plant Hunters in the Andes."

The cactus-minded reader of the "Journal" will find much of interest in this entertaining work: "At lower and middle altitudes, the cacti were abundant. Massive candelabra-like *Cereus coquimbensis*, called *el quisco*, grew everywhere and overtopped a whole series of lesser spiny relatives. Where this great cactus extended its distribution upward into the foggier, moister regions, festoons of lichen hung from its long tough spines. Sometimes the red stems and flowers of a parasitic plant changed its green surface to an unnatural color." There are excellent photographs of cacti in their native haunts: among them, almost unbelievable specimens of *Espositia lanata*; the rare Peruvian *Cactus townsendii*; a fine hillside group of grotesque *Brownlingia candelaris*; and, very puzzling, a patriotic lament carved on the living trunk of a giant cactus. The frontispiece is designed to arouse the envy of succulent enthusiasts: it is a photograph of a fine specimen of *Puya caerulea* in the mountains of Chile. Bromeliads in Peru! "On driest valley walls bromeliads grew in quantity. Their spiny leaves and tall, slender flowering stalks relieved the monotony of the foothill landscape, but at the same time intensified its desert as-

pect." Apparently these fine bromeliads have other than ornamental uses: "On the sandy hillsides there were patches of a silvery gray desert plant, *Tillandsia straminea*. The chofer and male passengers would collect a large pile of these plants and feed them to the sand in front of the wheels. It was remarkable how much traction these provided." In the story of "Plant Hunters in the Andes", James West, an old and valued friend of "Journal" readers, plays an important part. He was a member of the first expedition. Throughout the narrative James West is "the Prince." Old friends will delight in a humorously revealing situation confronting the Prince in one of the best chapters of this intriguing book—"Land of Monkey Puzzle." Perhaps the author describes the feelings of all plant collectors when he writes the story of the Prince's re-discovery of *Nicotian thyrsiflora*: "However true it may be that the charm of anticipation often exceeds the joy of realization in most human affairs, this relationship is always reversed in plant-hunting. For a dyed-in-the-wool collector there is nothing so solidly satisfying as the termination of a successful quest. All the strain and weariness, all the aggravations small and large, all the defeats and disappointments, are instantly forgotten. His eyes gleam, he gloats, he begins to whistle, he may even indulge in a bit of affectionate profanity. If some snake bite remedy is handy he is likely to take a drink—or even two." When the party first visited Matucana the Prince's enthusiasm knew no bounds: "He was, for the first time, surveying a cactus enthusiast's paradise, and among enthusiasts, like the Prince, none is so engulged by his addiction as the cactus enthusiast." There is a remarkably good picture of the Prince with two other famed plant collectors busy in the wilds near Lima, Peru.

Plant hunting is no picnic holiday. The trials and tribulations of these South American plant hunters is graphically told by the author. Every member of the expeditions plays a part, not always a heroic one, but the story is thoughtfully told with the sympathy and understanding that go to show the quality of a great expedition leader. In spite of earthquakes in Chile and shipwreck on Robinson Crusoe's Isle, the party returns home all well and happy and—with plenty of plants. The title of Dr. Goodspeed's book exactly describes it. By no means a tiresome list of plant names, it is rather a fascinating and stirring account of the toilsome and hazardous, even though often adventurous, lives of plant hunters in Peru and Chile. The author thinks in terms of plants, as a botanist should, but these thoughts are translated with a narrator's gift of entertainment and an artist's sense of beauty. "Plant Hunters in the Andes" will appeal alike to the plant lover, the scientist, and the fireside traveller. It is well illustrated by many good photographs, has three maps showing routes taken by both expeditions, and is well indexed. At once a book of plant reference and a remarkably readable story, "Plant Hunters in the Andes" must be immensely popular.

EDITOR'S NOTE: For the convenience of our members, we have copies of this book available for \$5.10 postpaid. California sales, please add 3% Sales Tax.



FIG. 133. Cactus Wren at nest in dooryard *Cereus*. Photo by R. S. Woods, Azusa, California.

The large, conspicuous nest of the Cactus Wren (*Heliodytes brunneicapillus*) offers a tempting target for vandals. For this reason, perhaps, the birds seem to appreciate the protection afforded in private cactus gardens. Possibly the cultivation of more cactus gardens would induce this very interesting bird to extend its range in southwestern California, where it is normally confined to certain washes and dry hillsides upon which the taller native *Opuntias* abound. Like its small relatives, this wren will avail itself of nesting boxes if these are designed on a scale appropriate to a bird of some eight inches in length.

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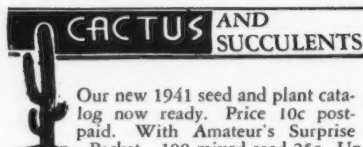
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